

REMARKS

The application has been reviewed in light of the Non-Final Office Action mailed February 16, 2005. At the time of the Non-Final Office Action, claims 1-16 were pending in this application. Claims 1-16 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Norman et al. in view of Chen et al. alone and in combination with other references. The Applicant respectfully traverses the rejections and submit that the cited references do not teach or suggest, individually or in combination, what is being claimed.

Rejection Over Norman et al. in view of Chen et al.

The Examiner rejected claims 1 and 3-6 under 35 U.S.C. § 103(a) as being unpatentable over Norman et al. in view of Chen et al.

Norman et al. disclose a method of forming and using particulate slurries for well completion. The method includes the step of withdrawing a gelled treatment fluid from a vessel 10 through conduit 11 into a metering device 12, which introduces the gelled treatment fluid into a pressurizing pump 14 through a conduit 13, which in turn induces the gelled treatment fluid into wellbore 16. Norman et al. patent; Col. 3, lines 6-10. The method further includes the step of withdrawing a particulate slurry from a vessel 20 through a conduit 21 into a metering device 22, which introduces the particulate slurry into pressurizing pump 14 through a conduit 23. *Id.* at lines 36-38. The particulate slurry admixes with the aqueous gelled fluid within pump 14 prior to introduction in wellbore 16. *Id.* at lines 38-40. According to Norman et al., the slurry is preferably prepared at least about four to six hours prior to the treatment and is preferably prepared offsite. *Id.* at lines 40-45.

Norman et al. fail to disclose a centrifugal pump, which mixes a fracture fluid with a sand suspension, and a pump that pumps the mixture discharged from the centrifugal pump downhole into the subterranean formation. Norman et al. also fail to disclose a pinch

valve that varies the amount of sand suspension being injected into the centrifugal pump. Norman et al. further fail to disclose monitoring the concentration of the mixture being pumped downhole and varying the amount of sand suspension being injected into the centrifugal pump until a desired concentration of the mixture is attained.

Chen et al. disclose an apparatus for producing a high density slurry and paste backfills for use in mining operations. The Examiner relies on Chen et al. for disclosing a pinch valve for controlling the flow of slurries. *See* Chen et al.; Col 10, lines 53-60. However, Chen et al. fail to disclose virtually every other element of the claimed invention.

Turning specifically to the claims, neither Norman et al. nor Chen et al., alone or in combination, teach or suggest the step of “monitoring the concentration of the mixture,” as required by independent claim 1. Although the Examiner states that Norman et al. disclose this step, he provides no support for that statement and none can be found. Rather, neither reference has any disclosure of monitoring the concentration of the mixture. Furthermore, neither reference alone or in combination discloses the unique combination of a centrifugal pump for mixing a fracture fluid and a sand suspension and a separate pump for pumping the mixture downhole. At best, Norman et al. discloses a single pump which both mixes the treatment fluid and particulate slurry and pumps it downhole. Chen et al. in turn discloses a screw mixer 92, but no pump. Moreover, the Examiner admits that neither Norman et al. nor Chen et al. alone or in combination disclose a pump separate from the mixing pump for pumping the mixture into the formation in his arguments in support of his rejection of claims 2, 7, 8, 10, 11 and 14-16. *See* Office Action at 3. Furthermore, the Examiner provides no basis for why a person of ordinary skill in the art would modify the system of Norman et al. to arrive at the claimed invention.

The combined references, therefore, fail to disclose at least two claim limitations of independent claim 1. Therefore, independent claim 1 and claims 3-6 dependent therefrom, are

believed patentable over the combination of Norman et al. and Chen et al. Accordingly, the Examiner's rejection of these claims as being unpatentable over Norman et al. in view of Chen et al. should be withdrawn.

Rejection Over Norman et al. in view of Chen et al. and Murphey et al.

The Examiner rejected claims 2, 7, 8, 10, 11 and 14-16 under 35 U.S.C. § 103(a) as being unpatentable over Norman et al. in view of Chen et al. and Murphey et al.

The disclosures of Norman et al. and Chen et al. are as discussed above. Murphey et al. disclose a method of continuously forming and transporting consolidatable resin-coated particulate materials in aqueous gels. The method is carried out using a system comprising a mixing tub, which mixes sand, liquid surfactant, an aqueous gelled carrier liquid, a liquid gel breaker, and a liquid epoxy resin composition; and a pump, which pumps the mixture downhole. According to the Examiner, it "would have been obvious to one of ordinary skill in the art at the time of the invention was made to use the additive stream and the additional pump of Murphey et al. with the apparatus of Norman et al. and Chen et al." Office Action at 3.

Turning to the rejected claims, claims 2 and 7 depend from independent claim 1, and therefore require the step of "monitoring the concentration of the mixture." As pointed out above, neither Norman et al. nor Chen et al., alone or in combination, disclose monitoring the concentration of the mixture. Murphey et al. fail to fill the gaps in both Norman et al. and Chen et al. in this regard. Indeed, Murphey et al. fail to disclose monitoring the concentration of the mixture. Therefore, none of the cited references alone or in combination disclose the step of "monitoring the concentration of the mixture," as required by dependent claims 2 and 7. Therefore, dependent claims 2 and 7 are believed patentable over the combination of Norman et al., Chen et al. and Murphey et al. Accordingly, the Examiner's rejection of these claims should be withdrawn.

As to the remaining claims rejected based on this combination, none of the references disclose the exact combination of a centrifugal pump for mixing a fracturing fluid and a sand suspension and a separate pump for pumping the mixture downhole, as required by independent claim 8, and dependent claims 10, 11 and 14-16. Furthermore, the Examiner has failed to provide any motivation as to why anyone of ordinary skill in the art would combine the three recited references, two of which relate to slurries used in downhole applications and one of which relates to a slurry for use in mining applications in the manner suggested by the Examiner. Indeed, there is no teaching or suggestion in any of the references themselves, as to why a person of ordinary skill in the art would pick only one element from one reference, several elements from another reference and several more elements for yet another reference. The only way the Examiner gets to his proposed combination is through impermissible hindsight. Neither the references themselves, nor any other reference supply the necessary motivation to combine the references in the manner suggested by the Examiner. Therefore, independent claim 8, and dependent claims 10, 11 and 14-16 are believed patentable over the combination of Norman et al., Chen et al., and Murphey et al. Accordingly, the Examiner's rejection of these claims should also be withdrawn.

Rejection Over Norman et al. in view of Chen et al., Murphey et al. and Cedillo et al.

The Examiner rejected claims 9, 12 and 13 under 35 U.S.C. § 103(a) as being unpatentable over Norman et al. in view of Chen et al. and Murphey et al. as applied to claim 8, and further in view of Cedillo et al.

The disclosures of Norman et al., Chen et al., and Murphey et al. are as discussed above. Cedillo et al. disclose a control unit 100 for controlling the density of a well fracturing slurry by using feed backs from a flow meter 80 and densometer 85. Cedillo et al., however, fail to disclose a system for controlling the density of a mixture of a sand suspension and a fracturing

fluid. Cedillo et al. also fail specifically to disclose using a LAN to communicate between the devices. The Examiner states that Cedillo et al. “inherently would use a local area network cable to communicate among the devices,” as required by dependent claim 13. However, there is no support for this statement. There are other means by which the devices may communicate with one another than by a LAN connection. Therefore, it is not inherent from Cedillo et al. that the connection be via a LAN.

Furthermore, the Examiner has failed to provide any motivation as to why anyone of ordinary skill in the art would combine the four recited references, three of which relate to slurries used in downhole applications and one of which relates to a slurry for use in mining applications in the manner suggested by the Examiner. Indeed, there is no teaching or suggestion in any of the references themselves, as to why a person of ordinary skill in the art would pick only one element from one reference, several elements from another reference, several elements from yet another reference and several more elements from still another reference. The only way the Examiner gets to his proposed combination is through impermissible hindsight. Neither the references themselves, nor any other reference supply the necessary motivation to combine the references in the manner suggested by the Examiner. Therefore, dependent claims 9, 12 and 13 are believed patentable over the combination of Norman et al., Chen et al., Murphrey et al. and Cedillo et al. Accordingly, the Examiner’s rejection of these claims should be withdrawn.

SUMMARY

In light of the above remarks, Applicant respectfully submits that the application is now in condition for allowance and early notice of the same is earnestly solicited. Should the Examiner have any questions, comments or suggestions in furtherance of the prosecution of this

application, the Examiner is invited to contact the attorney of record by telephone, facsimile or electronic mail, as indicated below.

Applicant believes that there are no fees due in association with the filing of this Response. However, should the Commissioner deem that any fees are due, including any fees for any extensions of time, Applicant respectfully requests that the Commissioner accept this as a Petition therefore, and directs that any fees be debited from Halliburton Energy Services, Inc.'s Deposit Account No. 08-0300 (Reference No. HES 2003-IP-010088).

Respectfully submitted,



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